



THE SCIENCE & TECHNOLOGY SECTION BRITISH EMBASSY TOKYO

Introduction

This note outlines the role of the Science & Technology (S&T) Section of the British Embassy in Tokyo in promoting UK research and development (R&D) skills in Japan. It explains how companies, universities and government departments can make use of the Section's services.

The importance of Japan

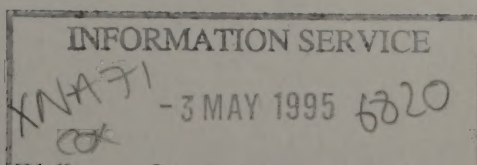
Japan is one of the UK's most important trading partners. In 1993, the UK exported goods worth £2.2 billion to Japan, while imports amounted to £8.5 billion. Japanese companies have invested heavily in the UK: 212 in manufacturing and 96 in R&D centres. Japan has a long-term commitment to science and technology. Over 30% of the world's innovative developments come from Japan (Japanese researchers produce over 300,000 patents every year). 25% of the world's researchers are Japanese (more than in the UK, France, Germany and Italy combined).

The British Embassy, Tokyo

British diplomatic representation in Tokyo dates back to the 1850s. The Embassy is housed in a purpose-built site in central Tokyo. It is one of the UK's largest overseas missions, with a total of 37 diplomats. The scale of the mission reflects the importance of bilateral relations between the UK and Japan.

The work of the British Embassy

The Embassy is at the centre of a network of contacts across the broadest spectrum of Japanese life. They include politicians, top industrialists, senior officials, business leaders, newspaper editors, influential scientists and leading engineers. In addition to political reporting and the cultivation of contacts, the Embassy helps organise a large number of programmes for senior visitors moving in both directions. In 1993, for example, 17 UK Government ministers visited Japan. Other essential tasks include support for British exporters, the



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encouragement of investment into the UK and the projection of British foreign policy. S&T is an important aspect of the UK-Japan relationship. The Prime Minister, John Major, saw this at first hand during his visit to Tokyo in 1993.

The work of the Science & Technology Section

The S&T Section consists of three UK-based staff. The Counsellor, Dr Cox, is seconded from the Department of Trade & Industry (DTI), as is one of the two First Secretaries. They are supported by seven Japanese staff. In fact, Dr Cox has the largest of the S&T Sections at any British Embassy (the others are in Washington, Moscow, Peking, Bonn and Paris). The Ambassador, Sir John Boyd, and other senior Embassy staff share and support the S&T Section's commitment to projecting the UK's R&D skills.

The Section makes and maintains a broad range of contacts in Japanese S&T. It reports on developments in areas of particular interest and importance. It also fosters and encourages partnerships between the UK and Japan.

Much of this work is concerned with bringing British and Japanese experts together and improving the transfer of information on S&T matters. This is done by organising programmes for visitors and missions, as well as identifying and collecting information for the UK on Japanese S&T developments.

Who do the S&T Section work with in the UK?

Within **Government**, the main contacts are in DTI, the Office of Science and Technology (OST), the Research Councils, the Ministry of Agriculture, Fisheries and Food, the Department of Transport, the Department of the Environment and the Foreign and Commonwealth Office. Each month, the S&T Section reports on various aspects of Japanese government science (budget, research goals, policy changes etc). There is constant interest in Government basic research and technology development programmes, as well as the Japanese technology foresight process. National institutes and research agencies also receive information on Japanese S&T. Recent users include the National Physical Laboratory, the Laboratory of the Government Chemist and the Daresbury Rutherford Appleton Laboratory, who were sent information on Japanese developments in their field of interest.

Most academic links with **universities** are made by the Science Section of the British Council's Tokyo office. It is the main link between UK academic researchers and their counterparts in Japan. However, the Embassy's S&T Section can also help academics, particularly when they want to get in touch with Japanese companies. In the last year, the S&T Section has hosted lectures by academics from the universities of Cambridge, Cranfield and Manchester. This provides a useful showcase for their expertise. It also helps to highlight UK skills in particular areas of R&D.

Every month, a number of British **companies** receive assistance, usually by identifying researchers in particular areas. Introductions to Japanese companies, universities and national institutes can also be provided. The S&T Section plays an active role in technology brokerage. It can identify and approach possible partners for collaborative research, as well as identifying future opportunities. Recent users include BAe, British Sugar and British Gas, as well as small companies such as Photonex and Dextra Laboratories.

Most **institutions, societies and academies** have strong links with their Japanese counterparts. However, the S&T Section often help with their enquiries and missions. Recent users include the Royal Academy of Engineering, the Institution of Mechanical Engineers and the Institution of Civil Engineers.

Who do the S&T Section work with in Japan?

The main contacts in the Japanese **Government** are the Ministry of International Trade and Industry (MITI), the Science and Technology Agency, the Ministry of Education, Science & Culture, the Ministry of Transport, the Environment Agency, the Ministry of Construction, the Ministry of Agriculture, Forestry and Fisheries and the Ministry of Foreign Affairs. Each month, the S&T Section is asked to help with enquiries on various aspects of UK science or to brief officials on new developments. In the last year, there has been great interest in the 1993 UK Government White Paper *Realising our Potential*. Requests are also received from national institutes and research agencies and answered using a network of contacts in the UK. Recent users include MITI's Electrotechnical Laboratory and the Mechanical Engineering Laboratory.

Most links with Japanese **universities** are maintained by the British Council. However, the Embassy's S&T Section also helps academics, particularly when they want to get in touch with UK companies or Government. Recent users include the University of Tokyo and Tokyo Institute of Technology.

Each month, the S&T Section helps a number of Japanese **companies**. Typical requests are to identify UK researchers in particular areas or report on new developments. Introductions to companies, universities and institutes in the UK can be provided. Much of this is linked to promoting the UK as a partner for collaborative research and as the natural choice for a European research centre investment. Recent users include NEC and Toshiba.

What are the main activities of the S&T Section?

Each year, the S&T Section arranges about fifteen technical **missions**. Each mission usually consists of industrialists and one academic. All are specialists in their particular field. They spend up to two weeks taking a detailed look at developments in their area and produce a detailed report for dissemination

within their industry. Recent DTI-sponsored missions have looked at Japanese developments in semiconductor lasers, smart materials and structures, mechatronics, software maintenance, high speed marine transport and waste disposal technology. There are also three to five **high level missions** each year. These are led by senior figures from UK science and engineering. Recent high level visitors include the presidents of the Royal Society and the Royal Academy of Engineering.

Another major activity is **information gathering and reporting**. Each month, 20 to 30 reports and papers are sent to the UK. Information in English goes to the DTI's Overseas Technical Information Service (OTIS) database at Pera International in Melton Mowbray ('phone: 0664-501501). Japanese language information goes to the British Library Japan Information Service in London ('phone: 071-323 7924). A great deal of useful information on Japanese science and technology is now available in English. However, most is "grey literature", such as reports that are not published through formal channels or disseminated widely. This includes company brochures, research association reports and trade association technology summaries. Symposium reports, White Papers, news reports and technology reviews are also collected for OTIS.

Each year the S&T Section produces a number of **Embassy reports**. Recent reports have covered developments in fuel cells, biotechnology, gene therapy, functional foods, environmental technology and grey literature. Often these reports are commissioned by DTI or OST. Others reports are written to draw attention to important new areas. All are available from OTIS.

The S&T Section plays a major role in **encouraging research partnerships**. There are now over 200 collaborations in basic research. Typically, they involve a university in the UK and a Japanese national institute. In the physical sciences and engineering, there are collaborations on microlithography, electron microscopy, microgravity, functional polymeric films, advanced magnetic materials and welding. In the life sciences there are projects on bioreactor technology, biomass utilization, protein metabolism in plants, the chloroplast genome, fungicide resistance, mapping plant genomes, biodiversity and biodegradable plastics. Every year, more of these projects are set up, often with the help of the S&T Section or at their suggestion.

A major success for the S&T Section has been in helping British organisations to take part in **Japanese national projects**. Rolls-Royce, Imperial College, the universities of Warwick, Kent and Wales, Kings College London and Camborne School of Mines all take part in various projects. Their contribution is funded by MITI. The S&T Section plays a crucial role in reporting on future projects as they take shape and later when participants are invited to bid. Information is sent to DTI and research councils, as well as direct to researchers in the UK, often with suggestions for partners in Japan.

The number of **secondment and fellowships** to Japan is increasing. At any one time there are about 200 young British researchers in the greater Tokyo area. Most do post-doctoral research at national institutes or universities with Government fellowships. Many Japanese companies have their own fellowship programmes (including Sony and Toshiba). Each year, about 20 engineers from British companies come to Japan to work on projects at companies under the DTI Engineers to Japan Scheme. The S&T Section can brief these scientists and engineers when they arrive and arrange a number of activities where they can meet their peers and network. The British Chamber of Commerce in Japan has an active Science and Technology Action Group (STAG), which helps in networking activities. The members of STAG are often called on for advice on specific areas of technology.

How to use the services of the S&T Section

The S&T Section is well connected. It maintains a database of about 3,000 contacts in government, trade associations, national institutes, research associations, companies and universities. It is experienced in dealing with all areas of Japanese S&T. The combination of respect for UK achievements in S&T and the cachet of working from the British Embassy means that their letters and enquiries rarely go unanswered. Of course, these contacts are of little use to the UK if they are not used!

The S&T Section can use its experience, knowledge of Japan and contacts to help you. If:

- you are visiting Japan (perhaps as the member of a mission);
- you need to find out about Japanese developments in your field;
- you need introductions to key researchers; or
- you need help in finding a research partner,

please contact Dr Cox. The address of the S&T Section is:

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